ORIGINAL

February 28, 1996

VIA MESSENGER

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: CC Docket No. 92-297

Dear Mr. Caton:

Texas Instruments, Inc., is writing to confirm its support for the 28 GHz band allocation plan recommended by the FCC staff to the Commission two weeks ago. If adopted by the Commission, this band plan, known as "Option 4," will enable successful implementation of state-of-the-art satellite and terrestrial communications services and will set the stage for local multipoint distribution service ("LMDS") auctions later this year. Texas Instruments also wishes to describe the severe problems associated with an earlier-proposed plan, known as "Option 5." Finally, Texas Instruments would like to express its grave concern with any additional delays in this proceeding, including the issuance of interrogatories at this late stage of the proceeding that seek detailed information on, *inter alia*, component costs and system pricing.

The Staff-Recommended Option 4 Should be Adopted

The staff's recommendation of Option 4 arose from a series of meetings over the past month between private sector interests and members of the International Bureau, Wireless Telecommunications Bureau, and Office of Plans and Policy. Consideration of 28 GHz band plan options, however, did not begin only recently. Over three years of discussions among the potential service and equipment providers, including a negotiated rule making committee and five months of extraordinarily detailed spectrum discussions among the Texas Instruments and other LMDS proponents and satellite interests, preceded the staff's deliberations this year. The final staff recommendation of Option 4 is the product of exceedingly careful consideration of the needs of all proposed services in the band as well as the opportunities for complex spectrum sharing solutions.

The resulting staff recommendation requires each service to give up some spectrum. LMDS, for example, which initially was slated by the Commission to receive 2,000 MHz in this

proceeding and, more recently, stated a requirement of 1 GHz, would be allocated only 975 MHz. Texas Instruments believes that, by equitably distributing the "pain" of sharing spectrum in the 28 GHz band, the Commission now has a band plan that competing interests should be able to accept as the best possible accommodation of all services. Further, in accordance with sound spectrum management policy, Option 4 requires co-frequency sharing wherever possible: Motorola and TRW MSS feeder links share with LMDS hubs and subscriber units, and geostationary FSS systems share with TRW MSS feeder links.[1]

Option 5 is Entirely Unacceptable and Should be Rejected

Texas Instruments firmly believes the three-way LMDS band split that was proposed in Option 5 is unacceptable. This assessment is based on the following facts.

LMDS requires adequate hub-to-subscriber (downstream) and subscriber-to-hub (upstream) bandwidth to provide the interactive broadband offerings central to the service and compete with other multichannel video providers (*e.g.*, cable and DBS). Each LMDS licensee will require on the order of 1,000 MHz total spectrum, about 850 MHz of which must be in the downstream direction. About 150 MHz is required for return links.[2] Under Option 5, the FCC

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[1] As the Commission is aware, the sharing rules proposed with Option 4 are not entirely complete: they would require LMDS to accept interference from MSS feeder link earth stations within a certain range, but do not specify the distance. Based on earlier discussions and filings, the Texas Instruments believes the appropriate distance to specify is 40 km.

Texas Instruments also believes the FSS bands 28.35-28.60, 28.60-28.70, and 28.70-29.1 GHz should be designated for LMDS operations on a secondary (non-interference) basis. This designation would mirror the 27.5-28.35 GHz LMDS band, which is allocated on a secondary basis to FSS. Also, the Commission should consider adoption a spectrum flexibility mechanism whereby these same bands (28.35-28.60, 28.60-28.70, and 28.70-29.1 GHz) could be used for LMDS on a primary basis if the satellite systems authorized therein are not deployed.

[2] In order to facilitate compromise and hasten completion of this long proceeding, Texas Instruments and other LMDS proponents already have stated their willingness to accept a total allocation of 975 MHz, with 850 MHz primarily for downstream traffic and 125 MHz primarily for upstream. Texas Instruments and other LMDS proponents therefore support the staff's recommendation of Option 4 to the Commission.

would allocate the bands 27.5-28.2 GHz and 28.45-28.60 GHz for hubs and subscriber links and 29.1-29.25 GHz for hub transmissions only. This would require use of the 28.45-28.60 GHz band primarily for support of subscriber transmissions.

Total spectrum, however, and the relative amounts of downstream and upstream bandwidth, are not the only critical economic issues for LMDS. One key equipment design goal is to keep the intermediate frequency (IF) range of LMDS subscriber terminals below 1,000 MHz, the typical maximum IF bandwidth of set-top boxes designed for cable and DBS/BSS(TV) receivers. If the IF bandwidth were to exceed 1 GHz, then entirely new, custom set-top boxes would need to be designed and constructed for LMDS, thus placing the service at a serious, perhaps fatal, competitive disadvantage to other multichannel delivery services. Option 5 is unacceptable because it would require an IF range in excess of the 1,000 MHz limit or a complicated channel/frequency implementation approach, neither of which would permit manufacture of competitively priced set-top boxes.

Further, Option 5 is unacceptable because it would cause serious spectrum use inefficiencies. Essentially, it would be difficult to tailor hub antenna patterns to provide precise coverage within LMDS cells. Even following an expensive antenna redesign, hub transmissions could be difficult to be received in some areas of a cell due to interference with adjacent sectors or cells. Finally, band Option 5 is unacceptable because it would require a complete and expensive redesign of existing LMDS equipment architectures.[3]

Additional Delay Should be Avoided

Texas Instruments strenuously opposes any additional delay in this proceeding. Regulatory delay will further postpone domestic deployment of U.S.-developed technology. Other countries already are ahead of the U.S. in adopting LMDS, while Americans are denied the service. Moreover, LMDS proponents had hoped for an auction by the end of this summer.

The GSO satellite interests in this proceeding face little or no risk in delay. Indeed, these inchoate systems are years away from deployment and have not even clarified why they require 1,000 MHz of spectrum beyond the fact that they are desperately attempting to accommodate all GSO applicants in this allocation. It seems obvious, therefore, that their primary objective is to

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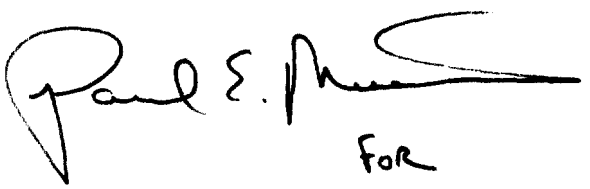
[3] The Commission has the information it needs to make a decision. Further discussion about equipment costs and pricing is not necessary and would only create delay. In addition, it may not be appropriate to request such information, given that it is the policy of most companies not to release such sensitive and proprietary data in a public proceeding.

get as much spectrum as possible in order to avoid mutual exclusivity and auctions, but LMDS has been relegated to a service with a single provider subject to auction.[4]

Conclusion

In sum, Texas Instruments believes that the staff-recommended Option 4, under which all parties will see a reduction of spectrum, is a well-considered solution to a complex sharing situation. It also is a welcome result to a long and thorough spectrum planning process, will foster successful satellite and terrestrial services, and can lead to fruitful LMDS auctions later this year. Texas Instruments implores the Commission to reject reconsideration of this carefully considered staff recommendation and avoid any additional dilatory procedures. Texas Instruments respectfully requests, therefore, that the agency move expeditiously to adopt Option 4 and corresponding service rules so that LMDS auctions can be held as soon as possible. If the FCC is not able to avoid further delay, Texas Instruments suggests that the Commission auction the entire 28 GHz band.

Sincerely yours,



Gene Robinson
Senior Fellow
Texas Instruments, Inc.

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[4] The FCC initially proposed two LMDS providers per service area, with 1,000 MHz of spectrum assigned to each licensee.

cc Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Andrew C. Barrett
Commissioner Susan Ness
Commissioner Rachelle Chong

Mr. Rudolfo Baca
Ms. Lauren Belvin
Ms. Jackie Chorney
Ms. Michelle Farquhar
Ms. Jennifer Gilsenan
Mr. Donald Gips
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